6: Dobbs G-5 (no date)1927 FL11 Luo FL11

FISHING IN THE KAVIRONDO GULF, LAKE VICTORIA.

By C. M. Dobbs.

History of the Industry.

228 Although fishing by natives along the shores of the Gulf has been carried on from time immemorial, it was only in 1905 that the fishing industry proper was started by Mr. Aarup, a Norwegian, who found by experience the best size and kind of nets to use.

227 Mr. Aarup, who was almost blind, appears to have done a lot of pioneer work in the industry, and definitely proved that the best mesh was what is known as the 5 inch. This gives a mesh of about 2 inches square. At first shoemakers' twine was made into nets locally, but this was not successful partly owing to the inferior lasting qualities of the twine and partly owing to the slipping of the knots which allowed the fish to escape. Trials were also made with cotton nets of thicker thread. These nets however took no Carp (Ngege and 227 Mbiru) but caught Kisinga (Fwani). Subsequently nets were obtained 439 from Messrs. Wm. Barbour, Lisbourn, Ireland, and these were found so successful that they ousted all the locally made articles and are the only sort used at present. *These nets are sold in the Kisumu Bazaar at a price of Shs. 17/- to 18/- and are 100 yards long, 5 inch mesh and 26 mesh deep, 35 twine three ply. They are of a drab colour and the thread is very fine. White and tanned nets are useless. Trials were made with thicker twine (No. 20) but the catches were small.

The average life of a net is said to be about 20 days, but in the hands of Europeans they have a longer life and sometimes last up to two or three months unless they meet with accidents as when a crocodile gets entangled in them.

In 1921 when the industry was more flourishing than it is to-day up to 20,000 nets were imported annually from Ireland.

Restrictions:

228 The use of nets with a mesh of under 1 inch square is forbidden by law. Trawling is also forbidden except in water of 16 feet and over, and at a distance of not less than a quarter of a mile from the shore; this means that trawlers cannot be used in the Gulf as it is all very shallow.

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* A large number of nets are also supplied to the Kisumu Bazaar by Messrs. Joseph Gundry & Co., Bridport. There is also a certain demand for White Nets.—*Editor.*

LAWS AND REGULATIONS:

228 The law in regard to fishing in Lake Victoria is contained in an enabling Ordinance entitled The Fish Protection Ordinance, 1908 (Caps. 163 Laws of Kenya) and regulations promulgated at various times by His Excellency the Governor. This Ordinance gave the Governor power to regulate fishing, impose fees and registration of boats, issue licences and determine times of fishing. The first rules published under the Ordinance were the Victoria Nyanza Fish Protection Rules, 1914, Government Notice No. 123, page 682 of the *Official Gazette* for 1914. These rules were applied to all that part of the Lake Victorial lying within the then East Africa Protectorate and to the mouth of every river. It contained the following Regulations:

(1) All persons fishing for sale or barter were required to register yearly. The fee was 300/- for all non-natives of Africa. No fee was charged for natives.
(2) All registered fishermen were required to register all boats, nets and stakes.
(3) No mesh was to be less than 1 inch square.
(4) Trawling was prohibited nearer than quarter of a mile from the shore and in water less than 16 ft. deep.
(5) No nets or stakes were to be placed in a fairway.
(6) Fishing grounds with nets to be buoyed.

Later in the year the Victoria Nyanza Fish Protection Amendment Rules were promulgated (Government Notice No. 181 of 3/8/14 *Official Gazette*, page 864). These defined " natives " as being South Kavirondo, Kisumu, and North Kavirondo natives and any other natives of African not of European or Asiatic origin who are in the employment of a non-native who is duly registered.

Further rules were published on 14/2/19 (Victoria Nyanza Fish Protection Rules, Govt. Notice No. 50, *Official Gazette*, page 103). These provided tha any person other than a native—who is exempt from registration under other rules—who employs natives to catch fish, shall be liable to registration and to other provisions as if he were himself a person employed in catching fish, and any person buying or bartering fish for resale or barter either by wholesale or retail shall be registered as if he were employed in catching fish.

METHODS OF CAPTURE:

[471] The fishing industry is in the hands of Indians who own the boats which are manned by natives. These natives in addition to their pay get a few of the fish caught. The vessels used are locally built flat bottomed boats 25 ft. long, 6 ft. beam and 2 ft. deep and cost about £50 each. They carry a lateen sail and the crew is generally five. They go out in the afternoon and lay the nets at sunset taking up the catch before daybreak and returning in the morning. Asembo Bay,

228 Kadimu, and Karachonya are the best fishing grounds. Fewer fish are said to be caught during the full moon and the takes are greater when the nights are dark and rainy.

The boats put out 10 to 20 nets each, *i.e.*, 1,000 to 2,000 yards. During the building of the Eldoret Railway one European who supplied fish to the labourers manipulated up to 8,000 yards of nets.

227 The 5 to 5½ inch mesh takes the Ngege, Mbiru, Mumi, Kamongo,
228 Seu, Suma, and sometimes Sira. Occasionally a net of a 3 inch mesh is used and this takes the Ningu, Sira, and Osoga.

These nets run on a coir rope top and bottom. The top is supported by corks and the bottom weighted with iron rings. They only catch fish while drifting and any check through catching on an obstruction will render them useless. The nets are often damaged by floating islands, boats, and crocodiles.

FISHING CENTRES:

050 There are three Indian fishing villages in the Gulf, at Seme, Asembo, and Nanga The last is only three miles south of Kisumu and is the only one near enough to supply fish for the Nairobi market.

MARKETING AND COST:

228 The fish for the Nairobi market are brought in by natives in sacks
435 on Sundays, Mondays, Tuesdays, and Thursdays. They are cleaned by Kavirondo women under a tree on the Lae shore near the station and are packed in ice and despatched to Nairobi by the 2-25 p.m. train. The Kavirondo women obtain the entrails as their perquisites and the Indian who superintends takes the gills which appear to be regarded as a delicacy and are extracted before the fish are packed. The fish are packed in ice in large chests The ice costs 18 cents a pound and one pound is required for each fish. The freight to Nairobi is Shs 3/50 per 100 lbs. Together with the other incidental expenses it costs about 25 cents to send a fish to Nairobi. When the fish are plentiful the usual price is 25 cents a fish in Kisumu market.

ADVERSE TIMES FOR FISHING.

228 The months April to August are not good fishing months and during these months the natives entirely give up fishing in the Lake with drag nets and confine themselves almost entirely to catching fish in the river weirs (Kek).

SPAWNING:

136 Most of the Lake fish spawn in May, June and July. Carp (Ngege and Mbiru) are plentiful during the other nine months. The carp (Kavirondo Ngege) spawn in shallow water with sandy bottom at a depth of 3 to 5 ft., and are thus immune from capture by nets which cannot be used in such shallow spots. They do not spawn in the Gulf except in rare cases but choose the spawning

6: Dobbs G-5 (no date)1927 FL11 Luo FL11

136 beds near the Islands where the bottom is sandy. The female scoops out a circular hole and deposits the eggs and the male then fertilises them and takes charge hanging over the nest and keeping away sediment by the action of the fins and tail till the young hatch out. This fanning motion keeps fresh water passing over the eggs.

It seems probable that the fish come up the Gulf to spawn and are then caught. A continuance of this year after year may be exterminating the Gulf fish. There is not any close season under the Ordinance. It is possible that the natives catch fry near to the shore under the impression that they are full-grown fish of a small type.

It will be noted that there is a certain amount of divergence of opinion as to where the fish spawn. My authority for stating that they do not spawn in the Gulf is Mr. Oorloff, ex-Government Assistant Surgeon, who is a local authority on Lake Victoria fish.

DECLINE OF INDUSTRY: DIMINISHING CATCHES.

228 433 There appears to be no doubt whatever that fish taken in the Lake are decreasing and various reasons have been brought forward to account for this. Mr. Acton, Superintendent of Inland Revenue and Conservancy, dealt with this in his annual report report for 1923 and the figures he gave are of interest and worth quoting:

Year.	Sum collected for licences.	Average retail price of fish.
	Shs.	Cents.
1917-18	16,350 ...	60
1918-19	14,530 ...	70 to Shs. 1/-
1919-20	19,350 ...	50 to 75
1920-21	19,200 ...	50
1921 (9 months) ...	16,300 ...	40 to 25
1922	9,900 ...	25
1923	8,120 ...	25

The following are the corresponding figures for the subsequent years:

1924	8,700
1925	10,500
1926	8,250
1927 to 31/5/27 ...	5,700

He states as follows: " During 1923 the fishermen appeared to have great difficulty in paying the annual licence of Shs. 300/- and although given a good deal of time in which to pay most of them had to be summoned to force payment.

6: Dobbs G-5 (no date)1927 FL11 Luo FL11

POSSIBLE REASONS FOR DECLINE:

228 The decline in the industry appears to be due to three main factors:—

(a) Fewer fish in the Kavirondo Gulf than formerly.
(b) Decline in retail prices giving less profit.
(c) Poverty of the fishermen.

In regard to (c) it may be remarked that during the years of high retail prices many wealthy merchants, Goans and Europeans, were engaged in fishing. These have since withdrawn and the class now carrying on the work usually have to buy nets and boats on credit or pay heavy interest on borrowed money, destroying the fishers' small profit and causing more and more to abandon fishing"

It is generally admitted that the catches of fish are less than they were. In the early years the average catch is estimated to have been over 25 fish per 100 yards of net while the boats operated at only about a mile from shore. In later years the catch fell to 5 per net and to get these the boats have to go from 12 to 15 miles out. The number of boats has also fallen off. At the height of the industry's prosperity there were 150 boats working on an average 10 nets per boat. Some boats worked as much as 20 to 25 nets.

NATIVE METHODS OF CAPTURE: NETS.

226 227 Turning now to the methods employed by the ordinary natives living along the Lake shores we find that fish are caught by drag nets, weirs, traps, harpoons, long lines and to a very small extent with fishing rods. The drag nets used are made of papyrus stems fastened close together and are about 5 ft. deep. They are made in two sizes, the larger size being called by the Jaluo " Gogo " and the smaller " Ogoda." One end of the net is towed out by men in canoes some distance into the Lake and is taken round in a half circle so as to enclose a considerable area of water. The two ends are then drawn towards the shore so that the net brings in with it any fish that have been enclosed. When it is fairly close in men wade into the water with long baskets (Dholuo, Aunga) and capture the fish in these. These baskets ae a form of trap made on much the same principle as a lobster pot and consist of a large cone of basket work about 6 ft. long with a smaller cone inside it pointing in the same direction. The inner cone is open at the end so that when a fish enters at the wide mouth of the basket it swims through the hole at the end of the inner cone and gets imprisoned in the space between the two cones.

BASKET TRAPS, PORTABLE AND STATIONARY.

227 A smaller form of Aunga is used by women, called Aunga Ketenga. There are two varieties of this, one with the double cone and one with only a single cone. When using the double cone ones they place three

21:Huxley Q, T-5 (no date) 1960 FL11 Luo FL11

over 5,000 people are spraying; here, with sixteen times the population, not 500 are. In the whole of Nyanza, with its 300,000 families, we have only sixty-seven Sahiwal bulls.

'On cattle, most of them won't budge. For instance, a man's prestige is somehow linked with that of his bulls, and they are most reluctant to castrate anything. Pioneers who try improved methods are unpopular and their neighbours are apt to gun for them; one man, for instance, had his pigs burnt alive. Still, we plug on. We have controlled rinderpest, if not East Coast fever—every year we give about 200,000 rinderpest inoculations. We export half a million hides and skins and are trying to improve their quality.'

It is perhaps worth noting that crops, whose improvement is considerable, are grown by women, but livestock is the exclusive concern of the men.

'In the years ahead,' this rather disillusioned vet concluded, 'we have only got to get across two basic principles: that a cow wants food all the year round, and that a calf needs milk. But it will take another twenty years before we make any real dent in Nyanza.'

On the other hand, some things unexpectedly catch on. A district officer who had seen fish-ponds in Malaya made half a dozen and stocked them with tilapia. Local people observed the ponds and, without any serious propaganda, dug others like them. Now there are over a thousand in Nyanza. They cost nothing, the Government provides free fingerlings and is full of plans for fish-ponds everywhere as the basis of a small industry.

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Maseno is a dynamo of education. It was started by the Church Missionary Society. 'The general plan of campaign was based on the model of Iona,' wrote the Rev. John Willis, later Bishop of Uganda, who with Bishop Tucker chose the site in 1904. On 14th January, 1906, the first resident missionaries, Mr. and Mrs. Hugh Savile, moved in—there was not much to move into, merely a grass hut under a tree that housed both the Saviles and a primitive dispensary. Nearly